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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,341	08/24/2006	Scott Gaynor	Q92644	1924
23373 7590 06/07/2010 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER				
BROOKS, CLINTON A				
ART UNIT		PAPER NUMBER		
1621				
NOTIFICATION DATE		DELIVERY MODE		
06/07/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com  
PPROCESSING@SUGHRUE.COM  
USPTO@SUGHRUE.COM

### Office Action Summary

**Application No.**

10/579,341

**Applicant(s)**

GAYNOR ET AL.

**Examiner**

CLINTON BROOKS

**Art Unit**

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 March 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6-16 is/are pending in the application.
- 4a) Of the above claim(s) 10-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

This action is **FINAL**.

### ***Status of Claims***

Applicants amended independent claim 1. Claims 2-4, 6-9 are original and depend directly or indirectly from claim 1. Applicants cancelled claim 5. Claims 10-16 stand withdrawn.

### ***Claim Rejections – 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

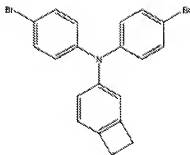
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

Art Unit: 1621

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

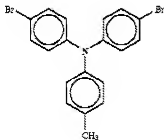
**Claim 1-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Unites States Patent No. 5,929,194 ("the '194 patent" made of record in the Restriction Requirement dated March 3, 2009).

For clarity the species election is provided again below:

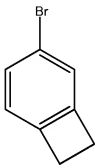


The '194 patent teaches the following species:

**22**



Still further, the '194 patent teaches that "[i]n one preferred embodiment, the haloaromatic compound is a halogen-substituted benzocyclobutene moiety according to Formula (XII)" (column 9, lines 13 to 15).

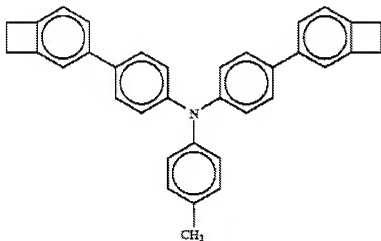
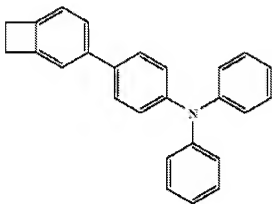


bromobenzocyclobutene (recited in the instant claims as a benzocyclobutanyl group)

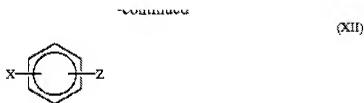
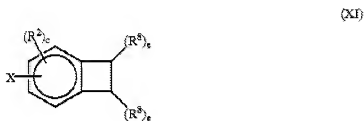
Further, the '194 patent teaches that "[t]he tertiary and di or polyamines useful as starting materials in this invention preferably contain two halogen moieties. Such compounds are generally prepared by reacting tertiary di- or polyarylamines which do not contain a halogen with molecular halogen in a solvent such as a halohydrocarbon or a carboxylic acid. Alternatively, the tertiary di- or polyarylamines containing about two halogen moieties may be prepared by contacting there tertiary di- or polyarylamines with bromosuccinimide. This process is described in R. H. Mitchell, Y. H. Lai, R.V. Williams J. Org. Chem., Vol. 44, p. 4733 (1979), relevant parts incorporated by references" (column 8, lines 20 to 32). Thus, the '194 patent teaches that two halogens are preferred as disclosed in the specie and the compound **22** of the '194 patent.

Further, the '194 patent teaches examples that contain a cyclobutene group such as example 5, and 21:

Art Unit: 1621



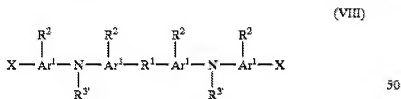
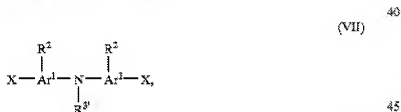
Further, the '194 patent teaches an advantage of the cyclobutene group on the aromatic amine "[p]referably, the haloaromatic compound having a reactive group capable of crosslinking or chain extension or a trialkylsiloxy moiety, corresponds to the formula E-Ar<sub>2</sub>-X wherein Ar<sub>2</sub>, E, and X are as previously defined. Preferably, the haloaromatic compound corresponds to formulas (XI) or (XII)" (column 8, lines 53 to 59).



Thus, the '194 patent teaches that the cyclobutene group provides an advantage because it is capable of crosslinking or chain extension. Further, the '194 patent teaches that "[w]hat is needed are relatively high molecular weight charge transport compounds which are capable of forming films and can be crosslinked by conventional methods, such as by radiation or heat curing, to form solvent resistant films" (column 3, lines 1 to 5).

Further, relevant teachings include at least the sub-genera below at column 7 (bromine is most preferred):

The starting materials for this process are one or more tertiary di- or polyarylamines having 2 halogen substituents. The tertiary di- or polyarylamines preferably correspond to Formulas (VII), (VIII), and/or (IX).



$\text{Ar}^1$  and  $\text{R}^2$  are as defined previously. 60

X is independently in each occurrence halogen, more preferably chlorine or bromine, and most preferably bromine.

$\text{R}^{3'}$  is independently in each occurrence a  $\text{C}_{1-20}$  hydrocarbyl moiety or  $\text{Ar}(\text{R}^2)\text{X}$ . Preferably,  $\text{R}^{3'}$  is independently 65  
 in each occurrence a  $\text{C}_{1-20}$  alkyl,  $\text{C}_{6-18}$  aryl moiety or  $\text{Ar}(\text{R}^2)\text{X}$ . More preferably,  $\text{R}^{3'}$  is phenyl.

Further, at least  $\text{R}^{3'}$  can be a  $\text{C}_{1-20}$  hydrocarbyl moiety. A benzocyclobutene moiety is a  $\text{C}_8$  containing hydrocarbyl group. Thus, this genus encompasses the elected specie and at least other members of the claimed genus.

In view of the reference as a whole, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the cyclobutene containing



aromatic ring for the toluene ring of compound **22** as taught by the '194 patent. One skilled in the art would have been motivated to maintain the two bromo containing rings because the '194 patent teaches that 2 halogen moieties are preferred. Further, the '194 patent teaches that preferred embodiments contain an arylcyclobutene moiety. Further, one skilled in the art would be motivated to substitute the arylcyclobutene moiety with the expectation of success because it provides an advantage over the toluene group of compound **22**. One skilled in the art at the time the invention was made would recognize that the arylcyclobutene containing molecule could crosslink and provide chain extension which leads to high molecular weight charge transport compounds capable of being crosslinked by conventional methods, such as by radiation or heat curing, to form solvent resistant films.

Still, further, one would be motivated to substitute one C1-20 hydrocarbyl moiety for another because structurally similar compounds are expected to have similar properties and because the subgenus links all C1-20 hydrocarbyl moieties as being similar.

#### *Response to Applicants' Arguments/Amendments*

In view of Applicants' amendment and argument the rejection is withdrawn. Specifically, Applicants argue that the specification discloses at page 6, lines 10-11 that preferred non-crosslinkable X group includes a C1-10 alkyl phenyl. Thus, the specification discloses that alkylphenyl is categorized as a non-crosslinkable group which teaches away from the claim interpretation of free radical polymerization of benzylic positions of alkyl aromatic compounds such as tolyl, etc.

In view of Applicants' amendment, the 102(b) rejection in view of the '194 patent is withdrawn.

With respect to the 103(a) rejection of record, Applicants argue improper hindsight, this argument has been considered but is not persuasive for at least the following reasons. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Further, Applicants argue that there is no motivation to select or modify the reference compound of Example 11 of Woo in the manner suggested by the Examiner with a reasonable expectation of success. However, this argument is not persuasive for at least the following reasons. As stated in the rejection below and added to the rejection because of amendment and because Applicants argue this specific point. The '194 patent teaches a sub-genus which encompasses the specie (IX)--C1-C20 hydrocarbyl. Further, the '194 patent teaches advantages of the cyclobutyl containing moiety as disclosed in the rejection of record. Therefore, as stated in the rejection of record one would be motivated to add the cyclobutene containing group to add these advantages. In addition and as a separate rationale one would be motivated to substitute one C1-C20 hydrocarbyl group for another because they are structurally similar compounds.

***Conclusion***

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLINTON BROOKS whose telephone number is (571)270-7682. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DANIEL SULLIVAN can be reached on (571)272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cab

/Daniel M Sullivan/

Supervisory Patent Examiner, Art Unit 1621